

CACTUS AND SUCCULENT JOURNAL

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Echeveria species growing as an epiphyte
in woods near Cuernavaca, Mexico. Photo
by Eric Walther



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CATALOGUES RECEIVED

KNICKERBOCKER NURSERY, 6065 Bach Ave., San Diego, Calif. Mrs. Bakkers has a most interesting 32 page list of cacti and the other succulents. Fifteen illustrations. (Free)

CURT BACKEBERG, Volksdorf, Bez. Hamburg, Im Sorenfeld 15, Germany. Twenty page

list of his latest discoveries in cactus seed. (Free)

JOHNSON WATER GARDENS, Hynes, Calif. Another of Harry Johnson's colorful catalogues containing not only water lilies but an ever increasing number of cacti and succulents. (Free)

This is not a page from one of the season's new catalogues, but is a photograph made by H. Wm. Menke from the Century Illustrated Monthly of March 1889. This catalogue advertised for 10c is now valued at \$25.00. Perhaps we are misinformed since the advertisement states that cacti require "absolutely no care!" Perhaps mealy bugs are products of the 19th century.



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Mar. '89.



Cephalocereus senilis
"Old Man"



Espositoa lanata x
Pilocereus dautwitzii

Cactus Culture

By WRIGHT M. PIERCE

Photos by Author

"After you purchase your rare plants, learn how to care for them."

So much has been written in regard to the care of cacti that it would seem unnecessary to say more, however, there are a few cultural hints that I wish to stress, after many years experience with these most fascinating plants. If I repeat what has already been published it is because I do not wish you to lose those choice specimens.

There are hardy species that will thrive when planted out in almost any climate. There are others, some of the most attractive, that must be grown inside, but under no circumstances, no matter how valuable the conditions, would I advise planting any seedlings outside before they have reached a fair size. Also, when transplanting from inside to outside, always protect the plants from the strong sun for a few weeks until they become hardened.

Now for the soil; for Cerei, Neomammil-

larias, and Echinocacti use a porous soil composed of sharp, clean, sand; garden loam; and leaf mould. If possible add some hydrated lime or, better, old plaster. Also a goodly portion of decomposed granite is advisable. Now even though many of the other succulents thrive in this mixture too, I think that, with a few exceptions, it is best to keep these plants in separate beds.

In nearly all cases it seems that cacti, especially during the summer, like a partially shaded bed better than one in full glaring sunlight. An ideal condition would be to use deciduous shrubs or trees which would give summer shade and allow the winter sun.

Since good drainage is essential for successful results, raised beds are by far the best. Now it seems that nearly all cacti like considerable moisture, much more than is ordinarily supposed. But here is the catch. Never water when the weather is cold, never permit the plants to be soaking wet for any

length of time, but keep them moist during warm weather and especially while the plants are growing. I feel that more cacti plants are lost in cultivation because of lack of water rather than because of too much.

When transplanting it is always better to trim back the roots, especially removing the long, "string-like" ones, which would probably die anyway. If at any time the roots rot, cut them off, well back toward the base of the rootstalk, thoroughly dry the plant, and then re-root in moist sand. You will be surprised how quickly a fine, complete, new root system will grow, if the plants are kept in a warm place.

Thus far, I have been speaking only about *Cerei*, *Neomammillarias*, and *Echinocacti*; *Epiphyllums*, for instance, need distinctly different culture—more moisture, and a richer soil, while *Opuntias* seem to thrive in almost any soil. The other succulents need various methods of care. *Mesembrianthemums*, here in Southern California seem to do better if kept dry in summer and moist during their growing period, winter. *Aloes* and *Agaves* enjoy the same soil and water conditions as *Cerei*, *Echinocacti*, and *Neomammillarias*, and many very effective plantings of these groups together, are seen here in the outdoor gardens of the Southwest. For their winter blossoms add very effective color to the background of any gardens during this usually blossomless season.

No plants can look, or be their best if infested with scale. There are two types, the circular, flat, tight sticking one which has a brown center. With a heavy infestation of this, the plant has a frosty appearance. This attacks all groups of cacti. There is a highly refined, good, oil spray which, used in the later afternoon, seems to keep this scamp under control. Then there is our old friend or rather enemy—*Eriococcus coccineus*, called "spiny mealy" by some. This is a bad pest and difficult to control and to kill, because of its waxy covering. Insect sprays must be used in very strong solution—so be cautious that you use one that will not burn your specimens.

The Cactus Journal of Great Britain gave "The Stapeliaceae" an excellent review, part of which follows:

"THE STAPELIEAE," by Alain White and Boyd L. Sloane, printed by the Abbey San Encino Press.

The family Asclepiadaceae is of particular interest from the peculiar formation of the flowers, the characteristic features of the family being the

union of the pollen into waxy masses, somewhat resembling the pollinia of orchids, and the mechanism for their transfer by insects to the stigmatic surfaces of neighbouring flowers. The 200 genera which comprise this family are mainly tropical although a few are found in temperate regions. Several of the genera exhibit succulent habits, in particular the Stapeliaceae and some of the Ceropegieae. Collectors of succulents are especially interested in the genus *Stapelia* and its close allies, among which may be mentioned *Caralluma*, *Duvalia*, *Echidnopsis*, *Hoodia*, *Huernia*, *Piaranthus* and *Trichocaulon*. Up to the present time the chief sources of information regarding these plants have been the *Flora of Tropical Africa*, 1904, *Flora Capensis*, 1909, and *Berger's Stapeliaceae and Kleinien*, 1910. Since the dates of these publications numerous species have been discovered and for descriptions recourse must be had to a large number of botanical journals. The publication of THE STAPELIEAE by Alain White and Boyd L. Sloane will therefore be very warmly welcomed by all interested in this group of plants. This work comprises an Introduction, Chronological Notes, Descriptions of Genera and Species and several Appendices. The whole forms a very comprehensive study of the tribe Stapeliaceae and is presented in a particularly readable and attractive form.

The section entitled Cultural Notes gives useful information regarding the care of plants in collections and the methods of propagation; the authors point out that the cultural directions apply particularly to the conditions obtaining in California, where the White and Sloane *Stapelia* Collection is maintained, but cultivators elsewhere should experience no difficulty in making those modifications necessary in other localities, as the general principles are so clearly set out. Naturally the main section of the book is devoted to detailed descriptions of the genera and species; the latter number over 300 and the authors are to be congratulated on the clear way in which the plants are described and are differentiated from closely allied species.

The general standard of production of the volume is very high and careful attention to the type used for the botanical names avoids any possibility of confusion in referring to any individual item. A feature of the book is the illustrations. A large proportion of the species described are represented by photographs drawn from a number of sources; the majority, however, are photographs by Boyd L. Sloane from plants in the White and Sloane Collection at Pasadena; these photographs and the list of plants growing there, indicate what a wonderful collection has been got together by the authors. A few of the illustrations are reproductions of early drawings and remind us of the charm and beauty of the older botanical works. Particular reference must be made to the excellence of the reproduction in colour as frontispiece of an early aquatint by Henderson, London, 1801, while the wonderful photographs of *Duvalia polita*, taken as the seed pods were bursting, will excite the admiration of all plant lovers. In conclusion, we are glad to note that the price of the volume has been kept very low compared with so many publications from the States and we hope the authors will, in consequence, secure the wide circulation that is so well deserved of this very complete work.

Collecting Succulents in Mexico

By ERIC WALTHER

Part II.

All photographs by Author

Originally designed to conclude with this part, our story is to be lengthened, by order of the Editor, to include additional data on the Mexican climate, roads and means of travel, living conditions, as well as a concise summary of the results of our observations on the genus *Echeveria*. Here we shall continue telling how and where the various species were found growing, so that a more logical foundation shall be laid for an understanding of our subsequent generalizations. In a genus of over 90 known species, containing, as *Echeveria* does, forms so very distinct in growth habit, it is always a most intriguing problem to account for the reason and causes underlying the origin of these different species. Rugged topography, a consequently great variation in local climate, coupled with sharp localization of the various species seem sufficient to explain the existence in such a small area of so many distinct species.

To illustrate, from the roof of our hotel in Mexico City, we could see a group of extinct volcano's looming up on the horizon, the Santa Catherina group, as they are known. Said to be the home of many Crassulaceous plants, we went by "Camion" to the end of the road at their northern base, thence on foot through the cornfields between walls of pumice-blocks. This pumice represents bombs once thrown out by these volcanoes, and is widely strewn over the fields and trails making the latter rather rough on our shoe-leather. Soon we found our first member of the Crassulaceae—*Sedum dendroideum*, growing on these dry pumice-walls and just coming into flower at this date*. Here we were put on the right trail by the old man of the mountain, out for his morning walk. Only 90 years old, he told us that once he too was a Hercules able to run up mountains, but the real kick of the incident was furnished by his name, which, of all things was "Narcissus." However, we were looking for *Echeveria coccinea*, the first species to come into cultivation, growing at Madrid in 1793; and here we found its first flower, where someone had dropped it on the path from a bouquet. Fancy *Echeveria*, a wild flower. Soon we came to

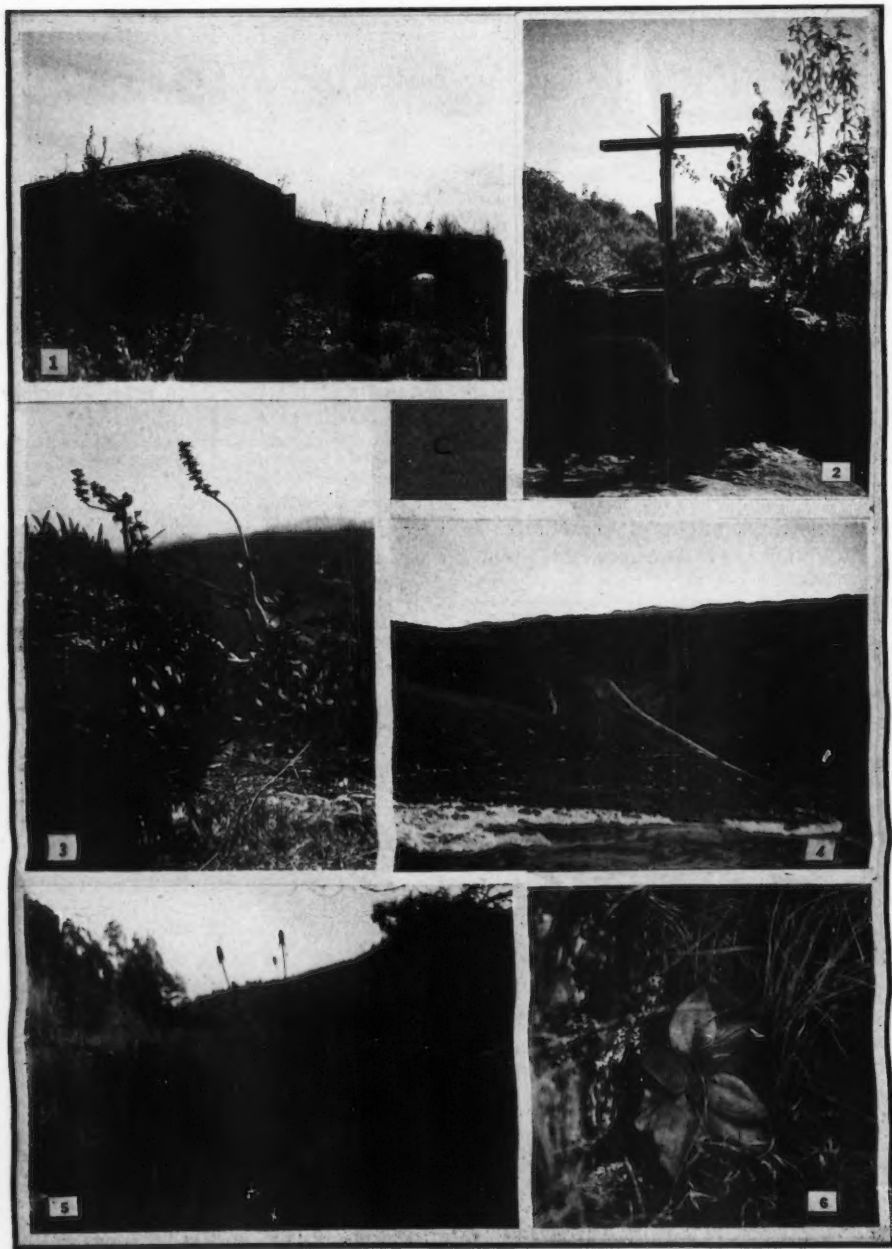
the species in full bloom, common everywhere and quite at home on these exceedingly dry lava-walls, as shown in photo A2.* No other plants seemed capable of surviving the heat and drought of this habitat, except *Neomammillaria rhodantha* and a fern, *Notholaena bonariensis*. So very frequently did we find this particular fern, or a related species, growing in intimate association with *Echeveria*, that the conclusion may be permissible, that its rhizomes constitute the favorite germinating medium for *Echeveria* seedlings. At higher levels on the central volcanic cone, appropriately known as "Penas Cosas," meaning "an abundance of rocks," *Sedum dendroideum* is very abundant, densely covering the summit. Here *Echeveria coccinea* is displaced by *E. glauca* or a closely allied form, apparently flowering in spring.

Also quite near the City grows *E. grandifolia* Haw., and the first plants found, under the aegis of Dr. M. Martinez, were actually situated within less than fifteen feet of an asphalt-paved highway, even if quite invisible therefrom. Here the plants were just coming into bloom, their tall, 6-foot panicles evidently a response to the tall grasses and other competing plants inhabiting the same steep sides of this barranca. Not far away this species was seen growing atop a wall, but only on this one wall in the whole village. At first this was rather puzzling, but soon explained by the observation that only this wall was built of blocks of the peculiar volcanic agglomerate or breccia on which the species also grew wild here. So thick were the plants on these walls that occasionally they had to be pulled off, lest they should destroy the wall, or at least so we were told. The same or a closely related species is illustrated in our photo C1, growing on the walls of a ruined church near El Parque; and not far away a wayside cross was seen decorated with cut sprays of its flowers. For 8 cents, American money, we bought two fine specimens to take home for further study, this particular form being rather highly colored.

At higher elevations on this same mountain-

*Nov. 8, 1934

*See March Cactus Journal, Vol. VI, No. 9, pg. 138



- C. 1. Walls at San Juanico Tlacotenco, with *E. gibbiflora* DC. (?)
 2. Flowers of *E. gibbiflora* used to decorate wayside cross.
 3. *E. nuda* Lindl. epiphytic on oak, with orchid, fern, moss and lichen.
 4. Road to Orizaba, home of *E. nuda*.
 5. Subalpine grassland at Cima, home of *E. mucronata* Schlecht.
 6. Rosette of *E. mucronata* Schlecht.

range, near Cima, we hunted for *E. mucronata*, not known to us in cultivation. The first specimens seen were found by young Erich Halbinger, son of Mr. Christian Halbinger, our gracious host of the day. The plants occur on surface ridges of lava edging a subalpine grassland, covered with an open stand of pine, see our photos C5 and C6. A surprise was the discovery that these plants possessed tuberous roots, a character not previously recorded for the genus, but subsequently observed elsewhere, in several closely related species. What pleased us most was the fact that these tuberous-rooted species had been segregated by us into a distinct *Series* of their own on the strength of floral characters, even though known to us almost wholly from dried material.

The other "species" in question, i. e. *E. maculata* and *platyphylla* of Dr. Rose's, we had the pleasure of finding on an excursion made possibly through the kindness of our friend, Mr. Halbinger, who drove us for over 12 hours, in part over some rather trying roads, towards Tula in Hidalgo. On the way we stopped near Lecheria for what seems to be typical *E. platyphylla* Rose, growing on low hills of lava; found what seems to be Dr. Rose's *E. maculata* near Huehuetoca and what may be typical *E. mucronata* Schlecht, at El Salto. All of these have tuberous roots, not merely a thickened, subterranean caudex; and as all occur among tall grass then becoming rather dry one may justly attribute their peculiar root system to the influence of a distinctive habitat.

Cuernavaca, well known to most American tourists, of course had to be visited, being the type-locality for at least two *Echeveria* species. Getting off the "Camion" outside the town, in a spot chosen by the bus driver, we saw the hand of fate in the immediate discovery, on the steeply cut bank of the road, of flowering plants of *E. crenulata* Rose.

Later, at our hotel, we made the acquaintance of Sr. Eric Oestlund, engaged in an intensive taxonomic study of Mexican orchids. Most hospitably he took us for a drive into the picturesque surroundings of Cuernavaca, during which we saw our first wild plants of *Lemaireocereus dumortierii*, growing in rather dense tropical growths, at an elevation of about 5000 feet. Early next morning the wooded heights near the village of St. Maria were explored for *Echeveria*, and our local guide soon showed us the plant he knew, but which turned out to be another species from

the one expected, closely related if not identical, with *E. grandifolia* Haw. The plants quite frequently even grew on moss-covered tree-trunks.

On another trip to this vicinity, but further east, we finally located *E. fimbriata* C. H. Thompson, on the Sierra de Tepoxtlán, shown in our photos B1 and B2.* Inhabiting the base of shady, moss-covered cliffs at about 8,000 feet elevation, in company with the most interesting *Sedum longipes* Rose, this species surprised us by reason of the fact that its leaves are not merely fimbriate, but actually hairy at the margins when young, becoming smooth later. The young leaves of this species are tinged a striking purple color. In spite of its hairiness *E. fimbriata* does not seem to be closely allied to any other hairy species, but clearly belongs near *E. fulgens* and *E. scopulorum*.

*See March Cactus Journal, Vol. VI., No. 9, page 139.

(To be continued)

PUBLICATION OF NEW SPECIES

It has been called again to the Editor's attention of the careless listings of plant names of new species that have not been published according to botanical rules. The listing of a new name in a plant catalogue does not constitute "publication" even with a brief description of the plant. If a dealer wishes to list an undescribed species, he should do so by number only, letting the formal name wait until it has been regularly published elsewhere. Botanical rules do not allow the acceptance of names published in catalogues and even though these names may become known some person may publish the species and omit the name of the person who first listed it in a catalogue.

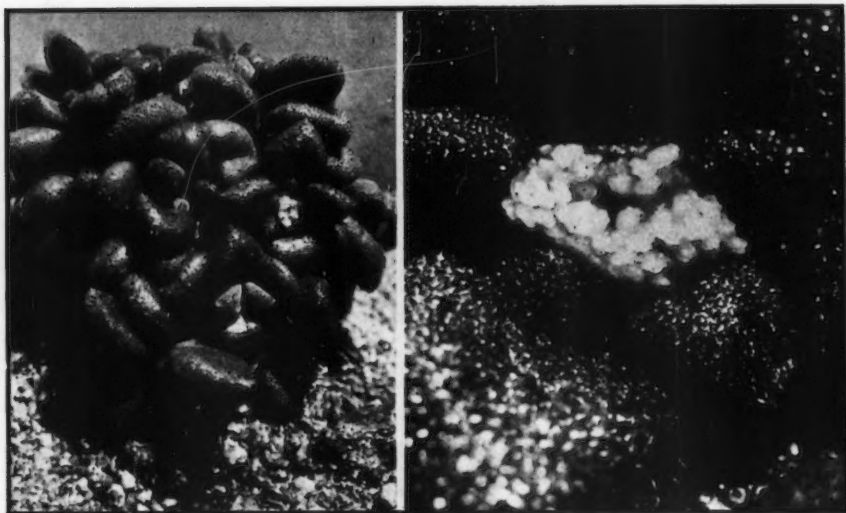
The JOURNAL now takes a definite stand in the matter of publication of new species. The application to publish a new species must be presented to the Editor who will select an impartial group to investigate the merits of the plant as a new species. The JOURNAL will then publish a formal description. Much confusion has been caused by careless, hasty, or incomplete publication and there must be a more definite aim towards clarification of nomenclature.

Dealers who publish catalogues can co-operate with the Society by securing publication in the JOURNAL or other scientific publications, or by listing new plants by number only.

SCOTT E. HASELTON.

New Garden Species, V.

Edited by DR. R. W. POINDEXTER



Delosperma Albert Krejci Hyb. No. 5, x 1.5. Flower is shown on right x 8.

DELOSPERMA ALBERT KREJCI HYB. No. 5 — Hort.

A. C. S. No. 2—010—620

Originator: Albert Krejci—1933

Seed Parent: *Delosperma steytlerae*

Pollen Parent: Unknown

This plant is exceptional among Mesembryanthema in that the flowers are wholly pistillate, lacking even vestiges of stamens or petals, though provided with sepals. That this may be a female example of a dioecious plant is an interesting supposition.

The illustration represents a plant 35 mm.

high by 45 mm. across and shows the extreme congestion and turgidity of the leaves. The plant is decidedly a dwarf, and of slow growth. The leaves are green, tinged with copper, and the "flowers" are yellow.

Mr. Krejci is one of our most active hybridizers and has furnished the Society's collection of type specimens with a number of plants which are being grown on as possible subjects for description when flower data is available.

An interesting article on the "Care of Cacti," by Ernest Branton appeared in the January 9th CALIFORNIA CULTIVATOR. He explains that most of the desert cacti can be rooted: first cut off the old roots, allow the plant to dry and then place it on top of a layer of gravel; keep the under soil damp to encourage rooting. Most difficulty in rooting cacti is in planting too deep with the result of early decay. Mr. Branton has written perhaps more than any other person on the Los Angeles collections as he worked with them twenty years ago.

"Vegetation of the Northwestern Coast of Mexico," by Forrest Shreve. Bulletin of the Torrey Botanical Club 61:373-380. October, 1934. In this discussion of the desert flora, rainfall and temperature, Dr. Shreve of the Desert Laboratory states that the most arid region in North America lies along the lower course of the Colorado River and on both sides of the head of the Gulf of California.

The following 8 pages are the fourth installment of Vol. II, *The Cactaceae*.



Echinocereus pensilis near summit of Sierra Laguna, Lower California. All the known plants in the United States came from this cluster.

Lower California *Echinocereus*

By HOWARD E. GATES

Photos by Author

The *Echinocereus* of Baja California, while limited in number of species, covers a large area and form a very interesting and diverse group. The only familiar species to us is *E. engelmannii* which is found along the road between the 29th and 30 Parallels. It doubtless ranges north along the eastern slope of the San Pedro Martir Mountains to connect with the known range of this species in the Colorado Desert. While varying somewhat from our local form, it is easily recognized as one of the fifty-seven varieties of *E. engelmannii*.

A few miles inland from the coast just south of Ensenada *E. pacificus* is found on sunny, rocky canyon banks. Its habitat is quite coastal rather than desertal. The plants form very compact clusters of rounded heads covered with medium length, brown to purple spines. The medium sized flower is red, which fact with its other characteristics probably ties it into the group which includes our *E. mojavenensis*. The few plants that have been brought into our gardens are doing very well.

In many places along the shore from Ensenada southward to Rosario are found im-

mense colonies of the yellow flowered *E. maritimus*. It too, is very compact in habit, forming clusters several feet across containing hundreds of heads. In this section the spines are nearly always gray, but farther south along Vizcaino Bay is a yellow spined variety. This species is strictly a coastal type, though the few plants found about fifteen miles inland are very much larger and more coarsely spined. A remarkable and pleasing characteristic is its very long blooming period. A large potted cluster in my garden was continually in blossom for six months.

On a dry, rocky hill in the desert near San Ignacio, I found the only cluster of true *E. mammillatus* I have ever seen. It has many slender, loosely arranged branches. There was no indication of ribs as the gray, star like spine clusters were borne on prominent tubercles. I am still waiting for it to blossom as I have not been able to find a description of the flower.

Southward from Calmalli on the 28th Parallel, especially in the mountains, are scattered patches of *E. brandegeei*. The large, loose heads are often two feet long.

The indistinct ribs are broken up into strong tubercles. There are several types or varieties. In the central portion of the peninsula there are gray and yellow spined types bearing large flat spines. Farther south the branches and spines are both smaller. The official description classes the large flower as purple. This is probably another error of the arm chair botanists as the flower is a true pink.

On the narrow wind swept and often fog hidden islands of Magdalena and Margarita *E. barthelowanus* is found. Its short heads are covered with brown to purple round spines and its compact clusters are often nearly hidden amongst lichen covered stones. Every branch forms its own roots as soon as it forms spines. The union with the parent branch is so weak that a large cluster cannot be lifted intact. The flower is probably the smallest of this genus as it is smaller than most of the *Neomammillaria* flowers.

Another strictly coastal species is *E. sciurus*. It is found only along the southern and eastern shores of the peninsula's tip. It looks so much like a *Neomammillaria* that my first collections in 1930 were shipped out under a *Neomammillaria* number. Its closely clustered heads are densely covered with very short white to light gray spines. The large pink flower is one of the most beautiful I have ever seen. It is considered difficult to grow in cultivation, but grafted plants do splendidly.

E. pensilis grows in only one range of mountains at the tip of the peninsula at elevations of five thousand feet or more. A very hard mule trip is necessary to reach its home and after one is there it is very difficult to secure plants as they love the inaccessible rocky cliffs. The cracks in these cliffs are filled with oak and pine leaf mould which looks very much like brown peat. Rooted in this peat like mass the pendant branches hang down over the rocks until they find another crack where they take root and hang down again. The pea green branches are an inch or more in diameter and bear widely spaced clusters of light gray spines. It has never been my good fortune to see its red flowers. The natives say there are daily rains in its mountain home during the late summer.

E. grandis, also ascribed to the peninsula, grows only on some islands in the Gulf of California, which I hope to visit this summer.

Last June while on a trip over a new road from Punta Prieta to Los Angeles Bay on the



Portion of the *Echinocereus pensilis* cluster shown on the preceding page.

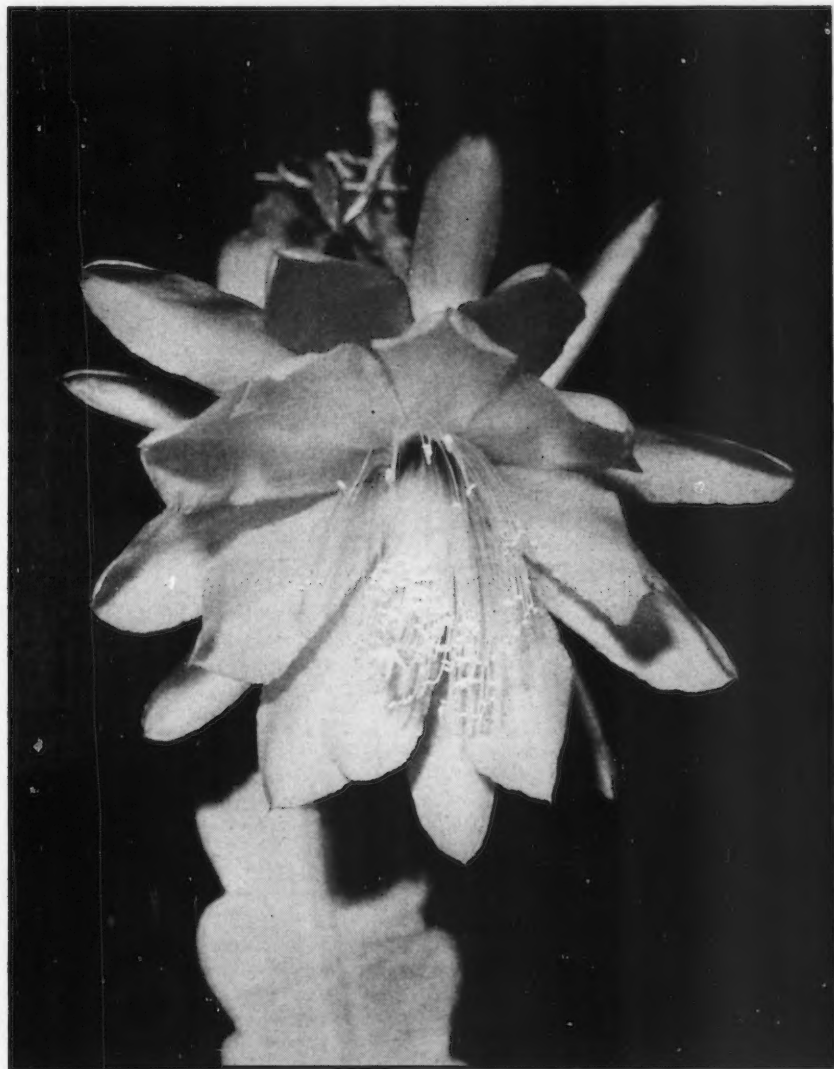
gulf, I found a new species which I expect to eventually describe as *E. fereirae** in honor of Sr. Enrique Fereirra, Consul of Mexico in San Diego, who has greatly facilitated my many exploration trips. The clusters of this species superficially resemble *E. fendleri*, but each new head soon forms its own roots. The radial spines are white or light gray and the longer centrals are brown. The very large flower is remarkable for its clear pink color and large clusters of white spines on the outer scales. Though its home is a very dry desert, it has taken kindly to cultivation. In the same locality was found a variety with shorter heads, more densely covered with shorter, brown spines.

*Gates number 550

THE STAPELIEAE

By Alain White and Boyd L. Sloane
The most complete and up-to-date monograph on Stapelias. 224 pages, 8 x 11 with 250 illustrations. Printing and binding are the best that can be secured. \$3.00

Cactus & Succulent Society



Chrome yellow *Epiphyllum* hybrid as grown by R. F. Kado

The Orchid of Easy Culture

By R. F. KADO

EDITORIAL NOTE. So many are interested in growing *Epiphyllums* and so little is written for the benefit of that large group that the all too infrequent articles by Mr. Wegener, Mrs. Steele and the present writer are doubly appreciated when they can finally be urged to

contribute their experiences with this interesting genus and its many brilliant hybrids.

It is interesting to note that in 1897, Charles Simon of Saint-Ouen, Paris, published a list in which 370 hybrids were listed, many of them existing today only as names.

In 1903, K. Schumann in his Keys of the Monograph recognized 21 valid species while Britton and Rose in their work reduced the number to 16, listing the following: *Epiphyllum phyllanthus*, *E. oxypetalum*, *E. pumilum*, *E. caudatum*, *E. darrahii*, *E. anguliger*, *E. grandilobum*, *E. crenatum*, *E. macropterum*, *E. lepidocarpum*, *E. pittieri*, *E. guatemalense*, *E. strictum*, *E. stenopetalum*, *E. cartagense* and *E. hookeri*.

The genus is noted for the wide variety of colors in its flowers, some of the varieties having the largest flowers in the cactus family. They are native to practically every country from Mexico south to Paraguay and Peru and are also found in Costa Rica. They are extensively cultivated in the tropics and are doubtless an escape in many places. They are great favorites in the greenhouses of Europe and Japan, many of the finest hybrids being the products of German and French fanciers.

Mr. Kado has had a long acquaintance with the Epiphyllums, having been a grower and collector of them almost exclusively for several years. *Epiphyllum cooperii* mentioned in the article is a cross between *E. crenatum* and *Selenicereus grandiflorus*.

C. L. C.

The sweet pea is often called "the poor man's orchid." So the Epiphyllum is coming to be known as "the orchid of easy culture" to the amateur collector. Both orchid and *Epiphyllum* are epiphytic. Both have flowers of startling and unusual coloring and both have similar texture of petals. But in relation to time and care used to develop the blooms, the Epiphyllum is by far the easier to cultivate.

These two epiphytes, the orchid and the Epiphyllum, are lovers of shade, warmth, and moisture. As the scientific term implies, both are able to sustain themselves by absorbing sustenance from the air rather than from the vegetation upon which they fasten. They are not parasites. But in some respects they differ. The genus *Epiphyllum* is indigenous to the Western Hemisphere alone. The length of time required to develop the spores of the orchid, and the years of time taken to bring it to the flowering period, to say nothing of the expense, makes it almost prohibitive to the ordinary collector's garden, while the Epiphyllum, on the other hand, responds readily to the care of those interested in its growth, and amply repays one in

a year or two with resplendent blooms.

It is for this latter reason that the following helps in growing them are set forth. These facts attempt answer to many questions asked me when speaking before garden club groups; when exhibiting at cactus shows and flower shows; and by visitors going through my gardens and propagating houses.

Epiphyllums can be rooted in sand; but a more satisfactory method is to first dry the cuttings in the shade for ten days or two weeks. Then using 3-inch pots, press each cutting down in mountain moss very tightly. Water them twice a week. To keep the cuttings moist they may be set inside larger pots filled with peat moss. They will be found well rooted in less than five weeks.

After rooting, the plants should be transferred to small pots containing a soil mixture of 30 per cent leaf mould, 30 per cent sandy loam, 20 per cent well decomposed cow fertilizer, and 20 per cent of German peat. The pots must have good drainage. These hybrids produce bloom best when the roots are crowded in small pot space.

After blooming, the plants may well be shifted to pots a little larger: from 5-inch to 7-inch ones. There are prepared foods to induce freer and better blooms and growth, and Epiphyllum responds well to such attention.

In using a foliage spray for common pests during the blooming season, the plants must be washed within fifteen minutes after using to prevent the spray from sealing the delicate tissues and thus deforming the flower buds or keeping them from opening at all. To get rid of the mealy bug, sprinkle Vaporite in the pot, replace the plant and water it. This process should be repeated after four weeks. Then these white pests will have disappeared.

The culture of this genus is so recent that not many who are fond of the Epiphyllum realize that they may have flowers in other than the usual spring months of bloom. But it is truly an all year 'round delight as are so many other more common plants in this Southern California climate. With hot-house care in cooler climates the same results may be secured. But the varieties must be carefully selected with that end in view.

As early as the middle of January you may be greeted with flowers 7-inches in diameter and of a gorgeous henna color. Then the "German Empress" (*Nopalxochia*) with its rose-pink color follows. Next "Ackermanii,"

a 3-inch red bloom may appear; then "Magnificent," with its 6-inch indian red flower and "Latona," cerise with magenta throat. However, the high tide of bloom for this genus is from March to July. In August comes *Epiphyllum cooperii*, with its 7-inch, yellowish white flowers. After these, "Cleopatra," also, *Heliocereus speciosus*, a radiant deep red with a magenta throat; then again the "German Empress," which blooms three times during the year. The "Autumn Queen" and the "Winter Princess" come into their own as late as November and December. Surely it is encouraging to pay some attention to securing these joyful occasions of flowering. With care to this end, about twenty-five varieties will be sufficient.

One must remember in making his selection that out of one thousand European named varieties about fifty per cent will produce identical blooms. That is to say, the descriptions by name vary with the grower.

Until American authorities organize as have the rose and the dahlia growers, and register names according to accepted methods, the *Epiphyllum* nomenclature will continue to be confusing. We hope that efforts to settle this uncertainty will be rewarded in the near future, but such attempts are usually slow in accomplishing the goal. We are constantly urging the matter on reputable growers whenever we can.

One plant named the "Orange Glories" is all that its name implies. It often attains a size of from 9 to 11 inches. The "Latona" has dark red outer leaves, then cerise petals, with a magenta center. The "Chrome Yellow" hybrid *Epiphyllum* is a beautiful example of splendid coloring. It has brownish red outer petals, chrome yellow petals, and its center is a violet throat.

Until one has made friends of these plants he has missed a great joy and as full a delight as a rare orchid blossom gives.

Culture of Haworthias

(Journal of Botanical Society of South Africa)

By J. W. MATTHEWS

"The Haworthias comprise about seventy species of the dwarf and succulent LILIACEAE. They are very distinct and variable in plant and leaf, and are useful and effective alike for pot culture, or on open-air rockeries. The flowering spikes are sparsely produced, and are dainty without being showy. The plants are mainly in the form of rosettes on the ground, or with leafy stems five or six inches long. A few are mainly underground with the tips of the leaves only exposed. The coloring and mottling of the leaves make up their most attractive features. Some species make a complete mass of short leafy shoots by increase of shoots at the base. Others make a matted mass from short suckers or stolons. A few remain individual plants, to be increased in numbers from seed only.

"In floundering about for visible and obvious indications of their requirements under cultivation they have provided a very interesting study. Few localities are recorded in Flora Capensis, and referring to the Garden's register their distribution is found to be mainly along the coast belt and the fringe of the Karroo, with a few on the Karroo, and inland northwards. That, however, does not help everybody, does not help one who has a *Haworthia* to grow, and is unaware of the

locality and the conditions existing there.

"It became apparent the only lines on which the principal requirements can be indicated are on the outward appearance or forms of the plants. At the one extreme the sun-loving, drought resisting type as *H. viscosa* from the Karroo. The leaves of this type are rigid and firm in texture, and of a brown or dark color. *H. tessellata* and *H. asperula* are included here. These require full sun, and dry conditions around the plant, and at the roots. A good loamy soil, well drained, will suit them; made fairly firm in pots, and more so in the rockery in order to carry off the winter rains rapidly. Raising or moulding up the soil will help still further. A narrow crack or fissure in a rock is an ideal position under Peninsula conditions. The point is to keep as little moisture as possible around the plants in winter. The closely allied *Apicras* can be included with this type for cultivation.

"The next group of sun-loving plants may be represented by *Haworthia reinwardtii*, *H. peacockii*, and *H. attenuata* in the white spotted and mottled species, and *H. chloracantha* in the unspotted species. These thrive admirably under ordinary pot culture, or on the rockery in well drained positions. They are

largely drought resistant, but are at their best with an occasional watering during the dry summer.

"The remainder, quite a number, of the Haworthias are mainly shade loving plants. The light green, turgid and bloated leaf species like *H. cymbiformis* and *H. altilinea* thrive well in sun provided the soil moisture is fairly constant throughout the year. In the rockery they are admirable for vertical recessed crevices with an Eastern aspect. The transparent or glassy leaved species like *H. pilifera* and *H. cooperii* are best in similar positions. Grown in pots or on level ground they require to be more or less underground with the tips of the leaves only exposed. When the whole of the rosette of leaves is to be constantly above ground, in the usual manner of plants, shade from direct sun is essential during the greater part of the day. This also applies to *H. bolusii* and *H. arachnoides*, as representing the group with numerous long teeth at the tips of the leaves. The leaves of these will not bear exposure to the sun during the heat of summer. When so exposed, the leaves shrivel and dry up to the ground level, where in natural conditions the sun's rays filter through a layer of dry sand, which protects the plant. These cobwebby plants, like the other Karroo type, will withstand prolonged drought, but under cultivation it is desirable to supply enough water to prevent undue shrivelling.

"The light green, the transparent, and the cobwebby species require a light sandy soil made up of two parts leafmold, and one each of loam and sand. Efficient drainage is essential in pots and rockery. During heavy downpours, or prolonged rains in winter, it is necessary to tilt the pot plants to avoid the plants being waterlogged. In the rockery the soil splashed in the center of the rosette should be cleansed out after the rains as well as around the base.

"Increase of most species is most by off-sets and stolons. Cuttings of the branched species readily root in a sandy soil, and some of the species will vegetate from the leaves. Seed germinates readily in pots of sandy soil with good drainage. Cover lightly with sand, just sufficient to hold the seed in place. Avoid overhead watering until the seedlings are well rooted. Stand the pots in an inch or two of water until the top of the soil becomes moist. If an airy glasshouse is not available, stand the seed pots in the shade of a building and cover with panes of glass to

conserve moisture, as well as to throw off heavy rains. Plunging the pots to their rims in loose moist soil will help to retain an even degree of warmth and moisture, assisting germination and lessening the amount of watering required. As soon as large enough the seedlings can be pricked off and placed an inch or two apart in a similar light soil, pressing the soil fairly firm with the fingers. Protection from heavy rains should be given for the first year.

"To the private grower the Haworthias provide interesting and variable material for a small rockery, the coloring, marbling, mottling, and spotting of the foliage being very charming in their variety and range. It is the most extensive genus of small and dwarf Aloe-like succulents in existence, and easily grown under Peninsula conditions. The one or other species provides ideal material for cracks and crevices, pockets, ledges, fissures and other awkward spots for which there is not a too large variety of plants suitable."

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Of the 900 named *Opuntias* there are perhaps not over 250 valid species, the others being reduced to synonymy or of uncertain affinity.

QUESTION COLUMN

I read with sympathy the article "Difficulties in Growing Cacti from Seed" in the February Journal, page 125, and wish to send along a few deductions from experience and observation for what they may be worth.

I am afraid it would be rather difficult to predict further germination in seeds mentioned by Mr. Strong. Although some unusual germination in cacti seeds may take place after a long time, they would hardly be as large as 25 per cent. Unless these already germinated have been removed from the seed flat, some air should be allowed to get in the flat for their sake.

The formation of mildew and algae seem to result from a lack of air circulation within the soil. Often a breaking up of the surface with a pen knife will correct this, but it can be largely prevented by using sand or granulated charcoal on the surface. This prevents the closing of the pores of the soil and retards the growth of algae. I have been told that a light sprinkling of flowers of sulphur is effective, but have not verified it by experience.

I have never used Semesan to prevent damping off, but this tendency is reduced to a minimum if mildew and algae are prevented and the soil thoroughly sterilized before use. The soil must not be kept wet.

The "minute flies which jump rather than fly" are usually an indication of sour soil. I know of no actual harm which these flies do, but their presence indicates a condition within the soil which is not conducive to best results. Almost any contact insecticide will destroy them as will also tobacco dust or a weak solution of lime water. The best prevention is to provide perfect drainage.

For the purpose of germination a rich soil is not, in my experience, necessary. Dr. Jacolyn Manning in the article, "Growing Cactus Seedlings," in Vol. IV, No. 10, of the Journal, has recommended a soil composition which has proved very satisfactory for me. If the seeds are fresh and fertile they have the necessary potentialities of becoming plants provided the proper conditions of moisture and temperature are supplied.

The amount of rootage will, of course, vary with the species and the age of the seedlings. I have found it best to take along a portion of the soil about the roots in transplanting which causes the seedlings less shock.

I do not think I can give much help in the mat-

ter of inoculation of seeds except to say that here in the East seeds of certain members of the Leguminosae are mixed with soil, from a field where they have grown, sometimes prior to planting. There is also, I understand, a commercial preparation used for this purpose. If or how this would apply to cacti seeds I do not know.

As the above will doubtless reveal to the experienced grower, I am very much an amateur, but even these things would have spared me many disappointments had I known them before I began to grow cactus seedlings.

R. W., Pennsylvania.

CACTI'S SHOW

Our seventh annual National Show will be held May 9, 10, 11 and 12, at the Edward H. Rust Nurseries, 352 E. Glenarm, Pasadena. The Show will open the first day at 2 P. M. and thereafter be open from 10 A. M. to 10 P. M.

With the steady growth of collections, each show has excelled preceding ones both in the number of rare species and in the quality of the plants exhibited. We believe this will be the best one we have held. Prospective exhibitors are requested to send in entries and space reservations at once.

Whether we realize it or not, there is something stimulating in exhibiting; in the spirit of sportsmanship which prevails in backing one's own pet plants against the field, and in making the acquaintance of others, some new; some old friends. Next to our Journal, shows are the most important educational factor to the cactus and succulent enthusiast. We urge other societies, whether or not they are affiliated, not to neglect this form of activity. The number of people who can attend the National Show is limited by proximity.

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R. W. POINDEXTER,
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